TECHNICON
ENGINEERING SERVICES, INC.

Assignment Sheet / Density Test

Project Number	: 23502-ZS9	Lab. Tech	: K. Ford
Project Name	: HSR	Date Completed	: 11/26/13
Date Drilled	: 11/11/13	Boring	: S0066R

Sample	Depth	Tests	Soil Wt Gms	Length in	Diameter in	Wet Wt Gms	Dry Wt Gms	Wet Density	Moisture %	Dry Density	Soil Classification
B01	0-5'	CURV,RV									SM
SS04	16-16.5'	DD,PI				40	34.7		15.3%		CL
SS06	26-26.5'	SA				200	175.9		13.7%		SM
SS08	36-36.5'	SA				200	178.2		12.2%		SM
MC09-2	40.5-41'	PI									CL/ML
MC09-1	41-41.5'	TRX									
MC12-1	56-56.5'	DD,DS	938.3	6.01	2.42	183	146.2	129.3	25.0%	103.5	SP
SS13	61-61.5'	DD,PI				40	33.9		18.0%		CL
MC16-2	75.5-76'	SA				200	161.9		23.5%		SP
MC18-1	86-86.5'	DD,DS	958.1	6.00	2.42	164	137.3	132.3	19.2%	111.0	SM
0											
0											
0											

Notes:

CHEM	Sulfate/Chloride	MR	Minimum Resistivity
COLL	Collapse	PH	pH Test
CONSOL	1D Consolidation	PI	Atterberg Limits
CURV	Modified Proctor	RV	R-value
DD	Moisture Density	RVT	R-value Treated
DS	Direct Shear	SA	Sieve Analysis
HY	Hydrometer	TRX	Triaxial Compression

Enginnering Materials Laboratory
4539 N. Brawley #108, Fresno, CA 93722
559-276-9311

TECHNICON
ENGINEERING SERVICES, INC.

Assignment Sheet / Density Test

Project Number	: 23502-ZS9	Lab. Tech	: K. Ford
Project Name	: HSR	Date Completed	: 1/20/14
Date Drilled	: 1/8/14		

Boring	Sample	Depth	Tests	Soil Wt Gms	Length in	Diameter in	Wet Wt Gms	Dry Wt Gms	Wet Density	Moisture %	Dry Density	Soil Classification
S0019AR	MC03-2	15.5-16'	SA				200	174.1		14.9%		SP
S0019AR	SS06	30-31.5'	SA				200	181.5		10.2%		SM/SP
S0020R	SS07	25-26.5'	SA				200	167.7		19.3%		SM
S0021R	MC10-1	46-46.5'	SA				200	180.2		11.0%		SM/ML
S0021R	MC18-1	86-86.5'	SA				200	184.8		8.2%		SP
S0021R	SS07	30-31.5'	SA				200	171.3		16.8%		SM/SP
S0029R	MC08-1	30.9-31.4'	SA				200	174.1		14.9%		SM
S0031R	MC03-2	10.4-11	SA				200	166.5		20.1%		SP
S0031R	SS08	35-36.5'	SA				200	175.4		14.0%		SM
S0034BR	MC09-1	41-41.5'	HY,SA									SM/ML
S0065R	MC04-2	15.5-16'	SA				200	172.6		15.9%		SM/SP
S0066R	MC03-2	10-11.5'	SA				200	172.0		16.3%		SM
S0067R	MC06-1	25-26.5'	SA				200	169.4		18.1%		SP
S0067R	MC11-1	45-46.5'	HY,SA									SM
S0067R	MC23-1	95-96.4'	HY,SA									SM
S0070R	MC09-2	40.5-41'	HY,SA									SM
S0070R	U05	20-22'	HY,SA									SM
S0072R	MC12-1	51-51.5'	HY,SA									SM
S0073R	MC11-2	45.5-16'	HY,SA									ML/CL

Notes:

CHEM	Sulfate/Chloride	MR	Minimum Resistivity
COLL	Collapse	PH	pH Test
CONSOL	1D Consolidation	PI	Atterberg Limits
CURV	Modified Proctor	RV	R-value
DD	Moisture Density	RVT	R-value Treated
DS	Direct Shear	SA	Sieve Analysis
HY	Hydrometer	TRX	Triaxial Compression

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Sieve Analysis for Soil / Fine Aggregate
ASTM C-136

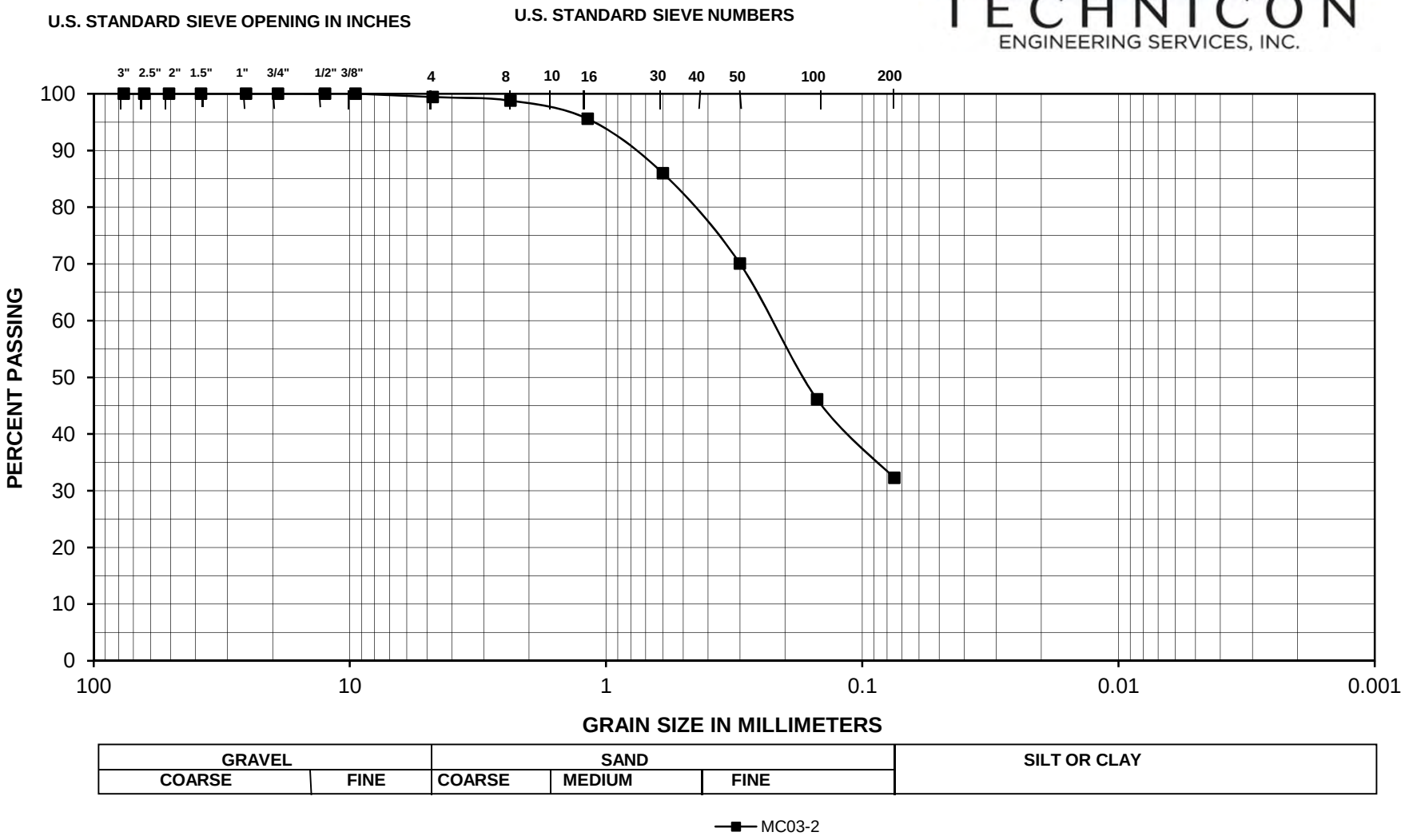
Project:	CA HSR	Technician:	K. Ford
		Date:	1/16/2014
TES#:	23502-ZS9	Sample No.:	MC03-2
Boring #:	S0066R; 10-11.5'	Classification:	(SM) Silty Sand

	Weight (lbs. or grams)	Maximum Sieve Size	Minimum Weight of Test Specimen, lbs. (kg)
Total Dry Sample + Tare Wt.		Sand	1.0 (0.5)
Tare Weight		3/8"	2.0 (1.0)
Total Dry Sample Wt.	172.0	1/2"	4.0 (2.0)
Initial Weight Fine Aggregate Before Wash	172.0	3/4"	11.0 (5.0)
		1"	22.0 (10.0)
Final Weight Fine Aggregate After Wash	120.2	1 1/2"	33.0 (15.0)
		2"	44.0 (20.0)

Sieve Size	Cumulative Weight Retained	Individual Weights Retained	Cumulative % Retained	Cumulative % Passing	Specs.
3 in.			0.0	100.0	
2 1/2 in.			0.0	100.0	
2 in.			0.0	100.0	
1 1/2 in.			0.0	100.0	
1 in.			0.0	100.0	
3/4 in.			0.0	100.0	
1/2 in.			0.0	100.0	
3/8 in.			0.0	100.0	
#4	1.0	0.0	0.6	99.4	
#8	2.1	1.1	1.2	98.8	
#16	7.6	5.5	4.4	95.6	
#30	24.1	16.5	14.0	86.0	
#50	51.5	27.4	29.9	70.1	
#100	92.7	41.2	53.9	46.1	
#200	116.5	23.8	67.7	32.3	
Pan	120.2				

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Sample #	Classification	% Gravel	% Sand	% Silt	% Clay	% Moist.	LL	PL	PI
MC03-2	(SM) Silty Sand	0.6	67.2	32.3					

Project:	CA HSR
TES#:	23502-ZS9
Boring #	**S0066R; 10-11.5'**
Date:	1/16/2014

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*Construction Testing & Inspection * Geotechnical & Environmental Engineering*

Sieve Analysis for Soil / Fine Aggregate
ASTM C-136

Project:	CA HSR	Technician:	K. Ford
		Date:	11/24/2013
TES#:	23502-ZS9	Sample No.:	SS06
Boring #:	S0066R; 26-26.5'	Classification:	(SM) Silty Sand

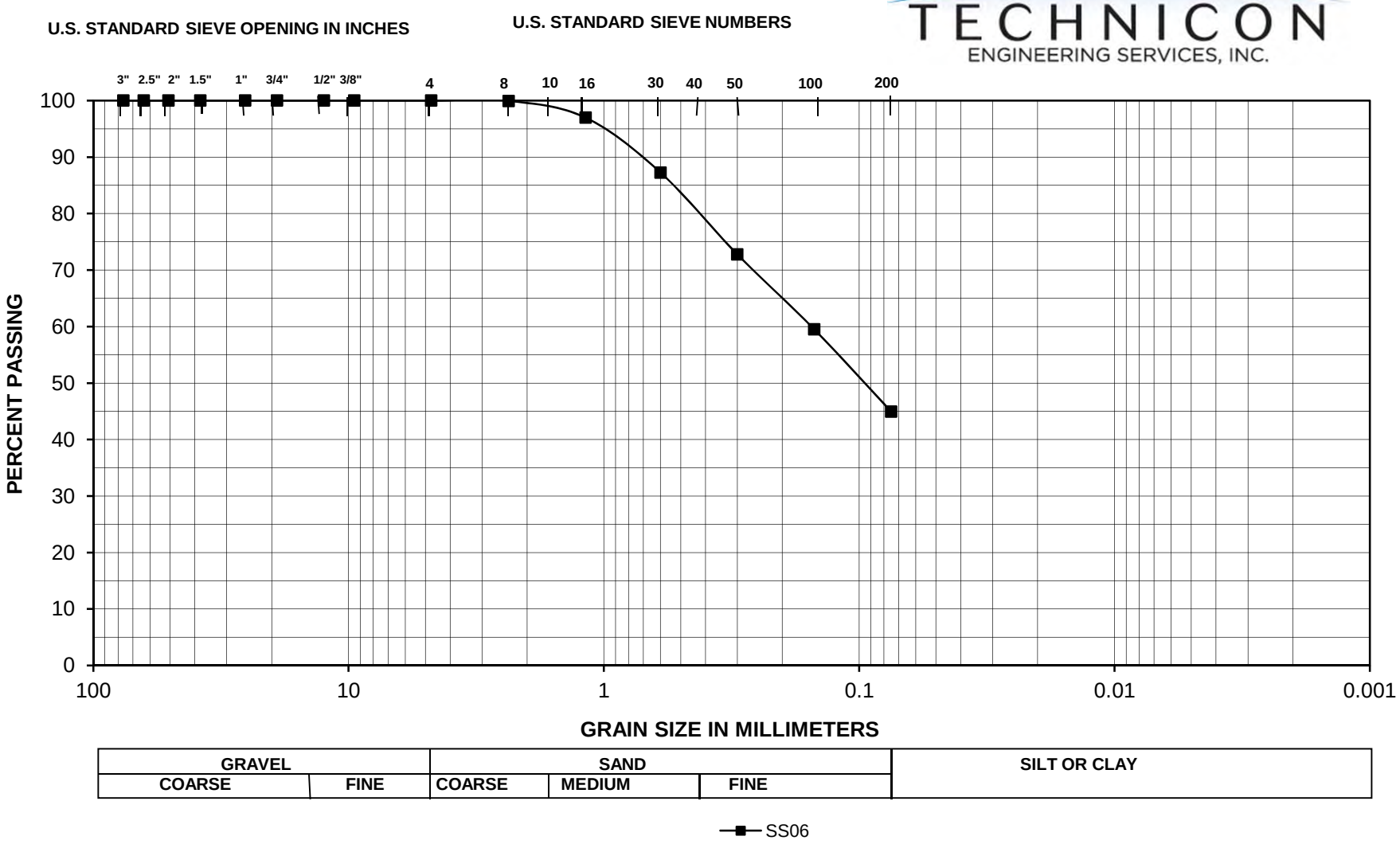
	Weight (lbs. or grams)
Total Dry Sample + Tare Wt.	
Tare Weight	
Total Dry Sample Wt.	175.9
Initial Weight Fine Aggregate Before Wash	175.9
Final Weight Fine Aggregate After Wash	99

Maximum Sieve Size	Minimum Weight of Test Specimen, lbs. (kg)
Sand	1.0 (0.5)
3/8"	2.0 (1.0)
1/2"	4.0 (2.0)
3/4"	11.0 (5.0)
1"	22.0 (10.0)
1 1/2"	33.0 (15.0)
2"	44.0 (20.0)

Sieve Size	Cumulative Weight Retained	Individual Weights Retained	Cumulative % Retained	Cumulative % Passing	Specs.
3 in.			0.0	100.0	
2 1/2 in.			0.0	100.0	
2 in.			0.0	100.0	
1 1/2 in.			0.0	100.0	
1 in.			0.0	100.0	
3/4 in.			0.0	100.0	
1/2 in.			0.0	100.0	
3/8 in.			0.0	100.0	
#4	0.0	0.0	0.0	100.0	
#8	0.1	0.1	0.1	99.9	
#16	5.3	5.2	3.0	97.0	
#30	22.4	17.1	12.7	87.3	
#50	47.9	25.5	27.2	72.8	
#100	71.2	23.3	40.5	59.5	
#200	96.8	25.6	55.0	45.0	
Pan	99				

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Sample #	Classification	% Gravel	% Sand	% Silt	% Clay	% Moist.	LL	PL	PI
SS06	(SM) Silty Sand	0	55.0	45.0					

Project:	CA HSR
TES#:	23502-ZS9
Boring #	**S0066R; 26-26.5'**
Date:	11/24/2013

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Sieve Analysis for Soil / Fine Aggregate
ASTM C-136

Project:	CA HSR	Technician:	K. Ford
		Date:	11/24/2013
TES#:	23502-ZS9	Sample No.:	SS08
Boring #:	S0066R; 36-36.5'	Classification:	(SP) Fine Sand

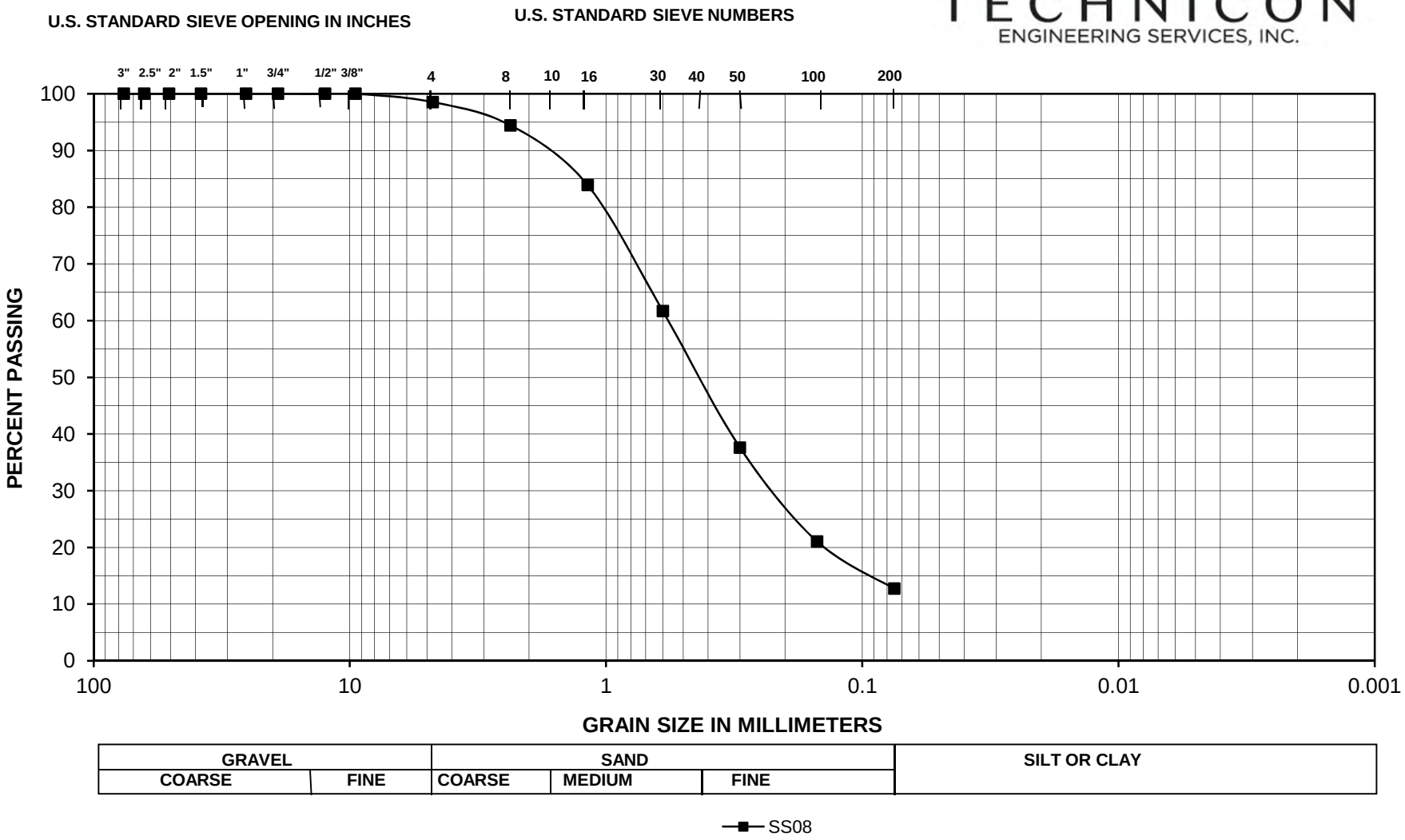
	Weight (lbs. or grams)
Total Dry Sample + Tare Wt.	
Tare Weight	
Total Dry Sample Wt.	178.2
Initial Weight Fine Aggregate Before Wash	178.2
Final Weight Fine Aggregate After Wash	155.9

Maximum Sieve Size	Minimum Weight of Test Specimen, lbs. (kg)
Sand	1.0 (0.5)
3/8"	2.0 (1.0)
1/2"	4.0 (2.0)
3/4"	11.0 (5.0)
1"	22.0 (10.0)
1 1/2"	33.0 (15.0)
2"	44.0 (20.0)

Sieve Size	Cumulative Weight Retained	Individual Weights Retained	Cumulative % Retained	Cumulative % Passing	Specs.
3 in.			0.0	100.0	
2 1/2 in.			0.0	100.0	
2 in.			0.0	100.0	
1 1/2 in.			0.0	100.0	
1 in.			0.0	100.0	
3/4 in.			0.0	100.0	
1/2 in.			0.0	100.0	
3/8 in.			0.0	100.0	
#4	2.6	0.0	1.5	98.5	
#8	9.9	7.3	5.6	94.4	
#16	28.7	18.8	16.1	83.9	
#30	68.3	39.6	38.3	61.7	
#50	111.2	42.9	62.4	37.6	
#100	140.7	29.5	79.0	21.0	
#200	155.5	14.8	87.3	12.7	
Pan	155.9				

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Sample #	Classification	% Gravel	% Sand	% Silt	% Clay	% Moist.	LL	PL	PI
SS08	(SP) Fine Sand	1.5	85.8	12.7					

Project:	CA HSR
TES#:	23502-ZS9
Boring #	**S0066R; 36-36.5'**
Date:	11/24/2013

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Sieve Analysis for Soil / Fine Aggregate
ASTM C-136

Project:	CA HSR	Technician:	K. Ford
		Date:	11/24/2013
TES#:	23502-ZS9	Sample No.:	MC16-2
Boring #:	S0066R; 75.5-76'	Classification:	(SP) Fine Sand

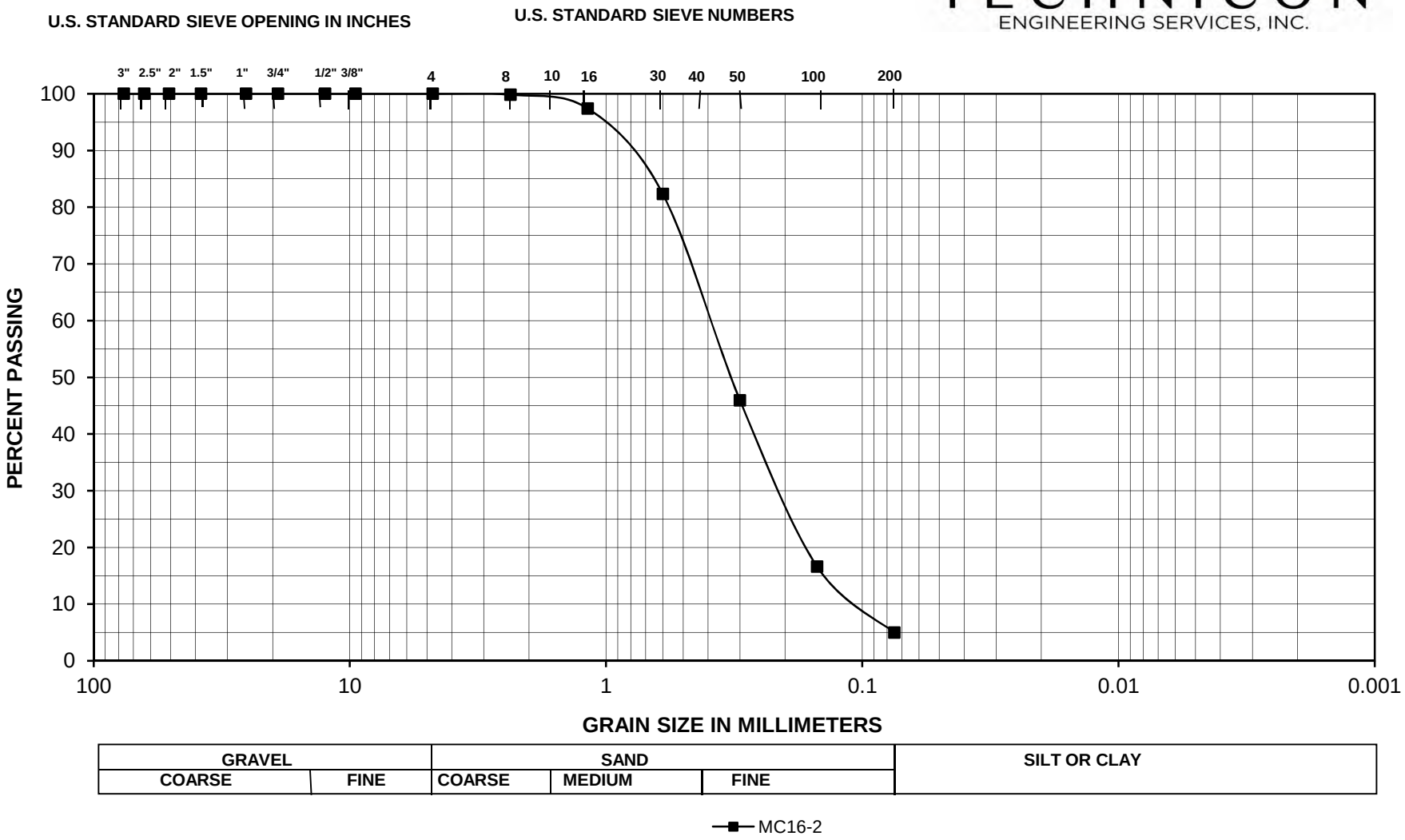
	Weight (lbs. or grams)
Total Dry Sample + Tare Wt.	
Tare Weight	
Total Dry Sample Wt.	161.9
Initial Weight Fine Aggregate Before Wash	161.9
Final Weight Fine Aggregate After Wash	154

Maximum Sieve Size	Minimum Weight of Test Specimen, lbs. (kg)
Sand	1.0 (0.5)
3/8"	2.0 (1.0)
1/2"	4.0 (2.0)
3/4"	11.0 (5.0)
1"	22.0 (10.0)
1 1/2"	33.0 (15.0)
2"	44.0 (20.0)

Sieve Size	Cumulative Weight Retained	Individual Weights Retained	Cumulative % Retained	Cumulative % Passing	Specs.
3 in.			0.0	100.0	
2 1/2 in.			0.0	100.0	
2 in.			0.0	100.0	
1 1/2 in.			0.0	100.0	
1 in.			0.0	100.0	
3/4 in.			0.0	100.0	
1/2 in.			0.0	100.0	
3/8 in.			0.0	100.0	
#4	0.0	0.0	0.0	100.0	
#8	0.3	0.3	0.2	99.8	
#16	4.2	3.9	2.6	97.4	
#30	28.6	24.4	17.7	82.3	
#50	87.5	58.9	54.0	46.0	
#100	135.0	47.5	83.4	16.6	
#200	153.8	18.8	95.0	5.0	
Pan	154				

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Sample #	Classification	% Gravel	% Sand	% Silt	% Clay	% Moist.	LL	PL	PI	Project:	CA HSR
MC16-2	(SP) Fine Sand	0	95.0	5.0							
										TES#:	23502-ZS9
										Boring #	**S0066R; 75.5-76'**
										Date:	11/24/2013

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Determination of Atterberg Limits

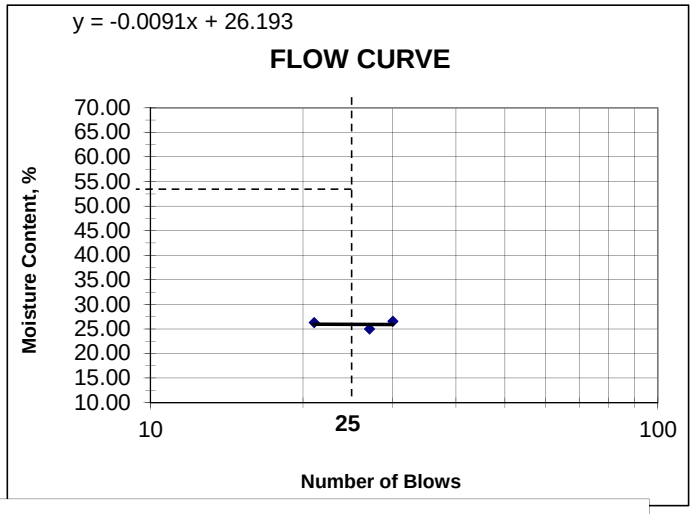
ASTM D 4318, CTM 204

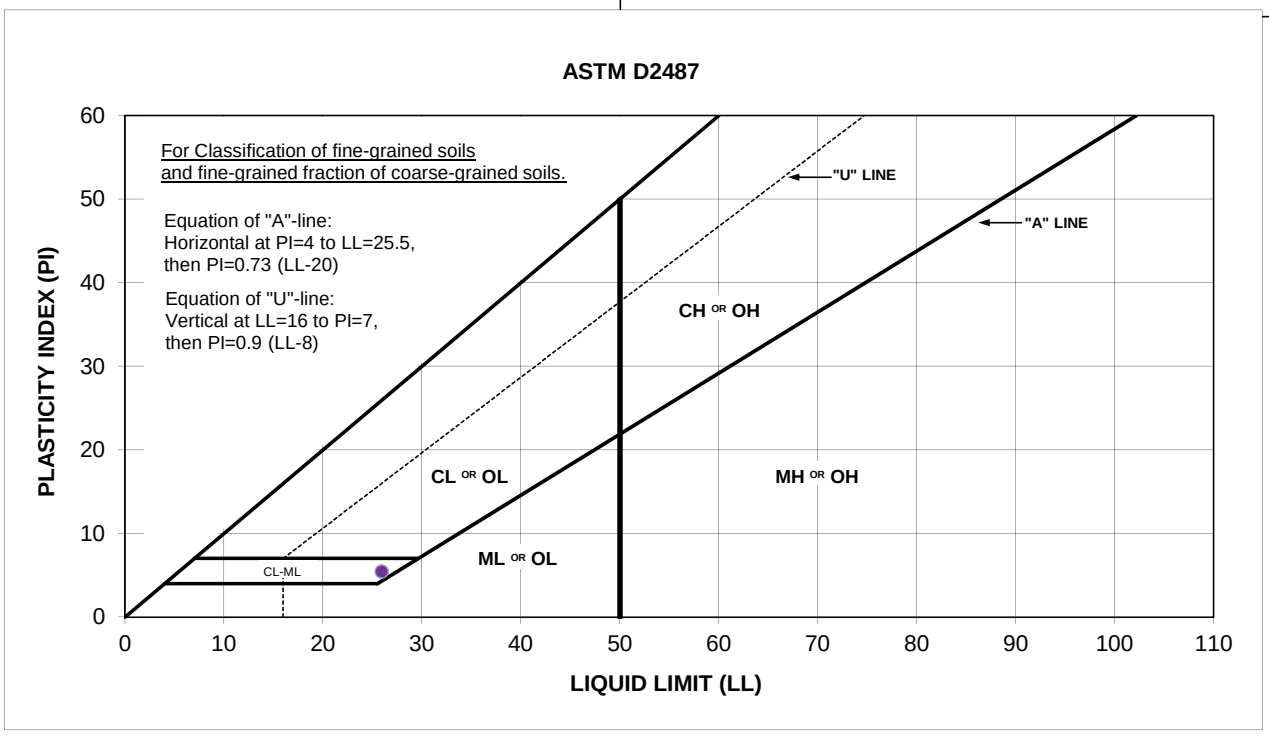
Project Name:	HSR	Boring No.:	S0066R		Project No.:	23502-ZS9
Sample No:	MC09-2	Depth:	40.5-41'	Date: 11/26/13	Tested By:	K.F
Soil Classification:	CL/ML					

		PLASTIC LIMIT				LIQUID LIMIT			
A	Tes No.	1	2	3	No. of Blows	21	30	27	
B	Tare No.	1	2	3		1	2	3	
C	Mass of Pan + Dry Soil, g	21.56	21.49	29.02		21.83	29.82	22.45	
D	Mass of Pan + Wet Soil, g	21.69	21.62	29.16		22.13	30.12	22.90	
E	Mass of Pan, g	20.95	20.89	28.27		20.69	28.69	20.65	
F	Mass of Water, g	0.13	0.13	0.14	0.00	0.30	0.30	0.45	
G	Mass of Dry Soil, g	0.61	0.60	0.75		1.14	1.13	1.80	
H	Moisture Content, %	21.31	21.67	18.67		26.32	26.55	25.00	
I	Average Moisture Content, % (PL)		20.55						

42.1795

Liquid Limit:	**26.0**
Plastic Limit: Line I	**20.5**
Plasticity Index: PI = LL - PL	**5.4**





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Determination of Atterberg Limits

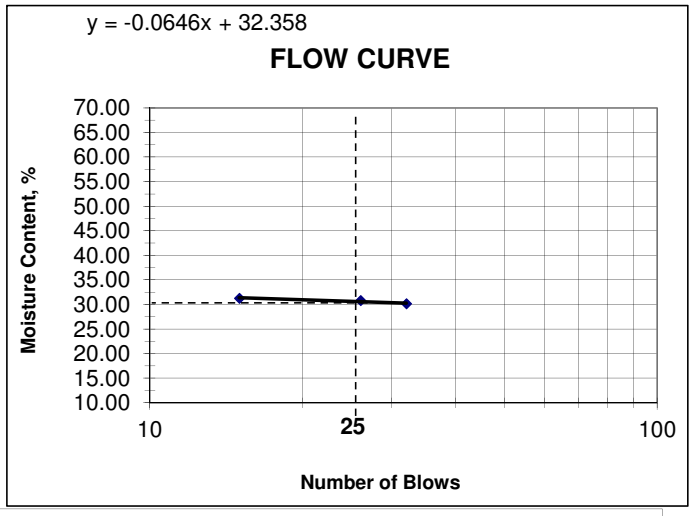
ASTM D 4318, CTM 204

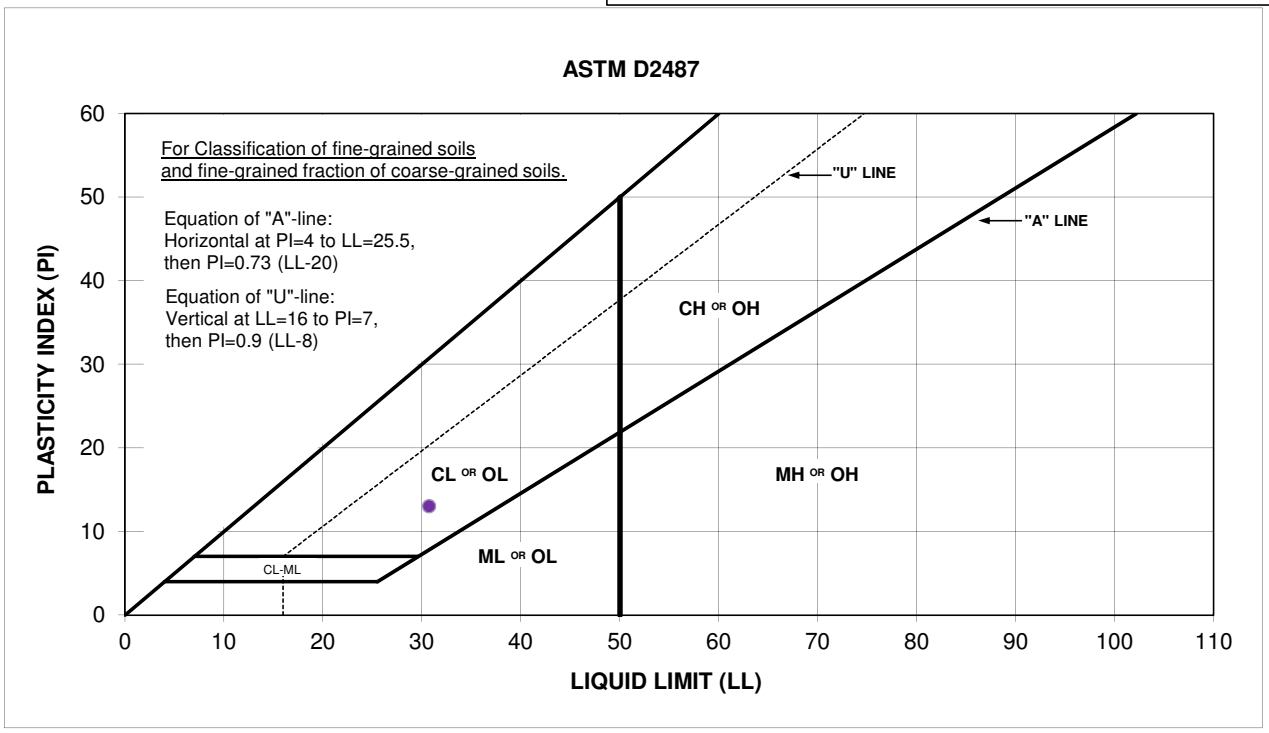
Project Name:	HSR	Boring No.:	S0066R		Project No.:	23502-ZS9
Sample No:	SS04	Depth:	16-16.5'	Date: 11/26/13	Tested By:	K.F
Soil Classification:	CL					

		PLASTIC LIMIT				LIQUID LIMIT			
A	Tes No.	1	2	3	No. of Blows	15	26	32	
B	Tare No.	1	2	3		1	2	3	
C	Mass of Pan + Dry Soil, g	29.69	29.21	29.53		22.37	29.52	29.47	
D	Mass of Pan + Wet Soil, g	29.90	29.37	29.71		22.84	29.89	29.79	
E	Mass of Pan, g	28.56	28.26	28.52		20.87	28.32	28.41	
F	Mass of Water, g	0.21	0.16	0.18	0.00	0.47	0.37	0.32	
G	Mass of Dry Soil, g	1.13	0.95	1.01		1.50	1.20	1.06	
H	Moisture Content, %	18.58	16.84	17.82		31.33	30.83	30.19	
I	Average Moisture Content, % (PL)		17.75						

42.1795

Liquid Limit:	**30.7**
Plastic Limit: Line I	**17.7**
Plasticity Index: PI = LL - PL	**13.0**





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Determination of Atterberg Limits

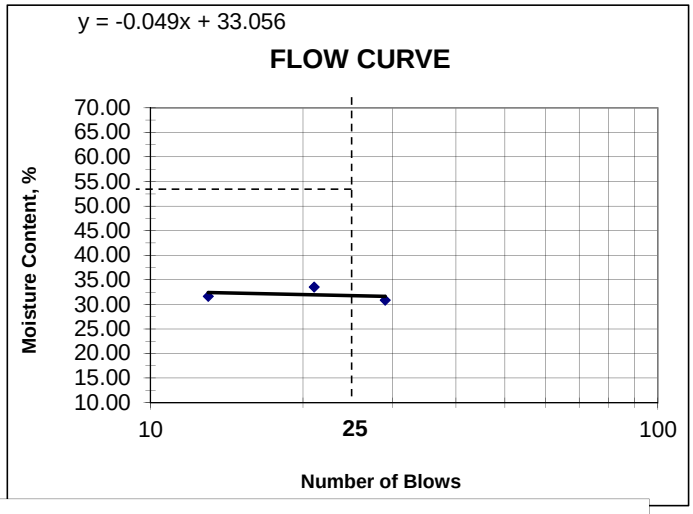
ASTM D 4318, CTM 204

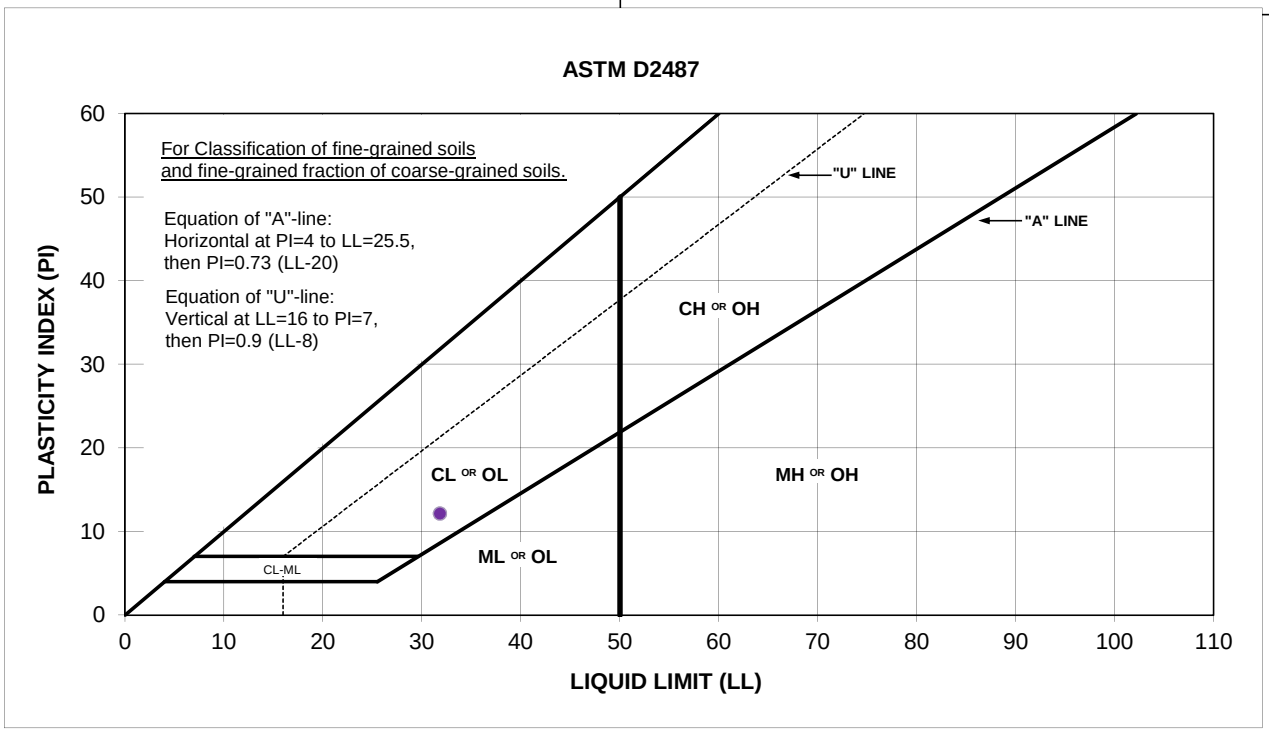
Project Name:	HSR	Boring No.:	S0066R		Project No.:	23502-ZS9
Sample No:	SS13	Depth:	61-61.5'	Date: 11/26/13	Tested By:	K.F
Soil Classification:	CL					

		PLASTIC LIMIT				LIQUID LIMIT			
A	Tes No.	1	2	3	No. of Blows	29	21	13	
B	Tare No.	1	2	3		1	2	3	
C	Mass of Pan + Dry Soil, g	29.16	29.23	29.39		30.28	22.67	23.06	
D	Mass of Pan + Wet Soil, g	29.32	29.39	29.61		30.87	23.28	23.76	
E	Mass of Pan, g	28.35	28.41	28.28		28.37	20.85	20.85	
F	Mass of Water, g	0.16	0.16	0.22	0.00	0.59	0.61	0.70	
G	Mass of Dry Soil, g	0.81	0.82	1.11		1.91	1.82	2.21	
H	Moisture Content, %	19.75	19.51	19.82		30.89	33.52	31.67	
I	Average Moisture Content, % (PL)		19.70						

42.1795

Liquid Limit:	**31.8**
Plastic Limit: Line I	**19.7**
Plasticity Index: PI = LL - PL	**12.1**

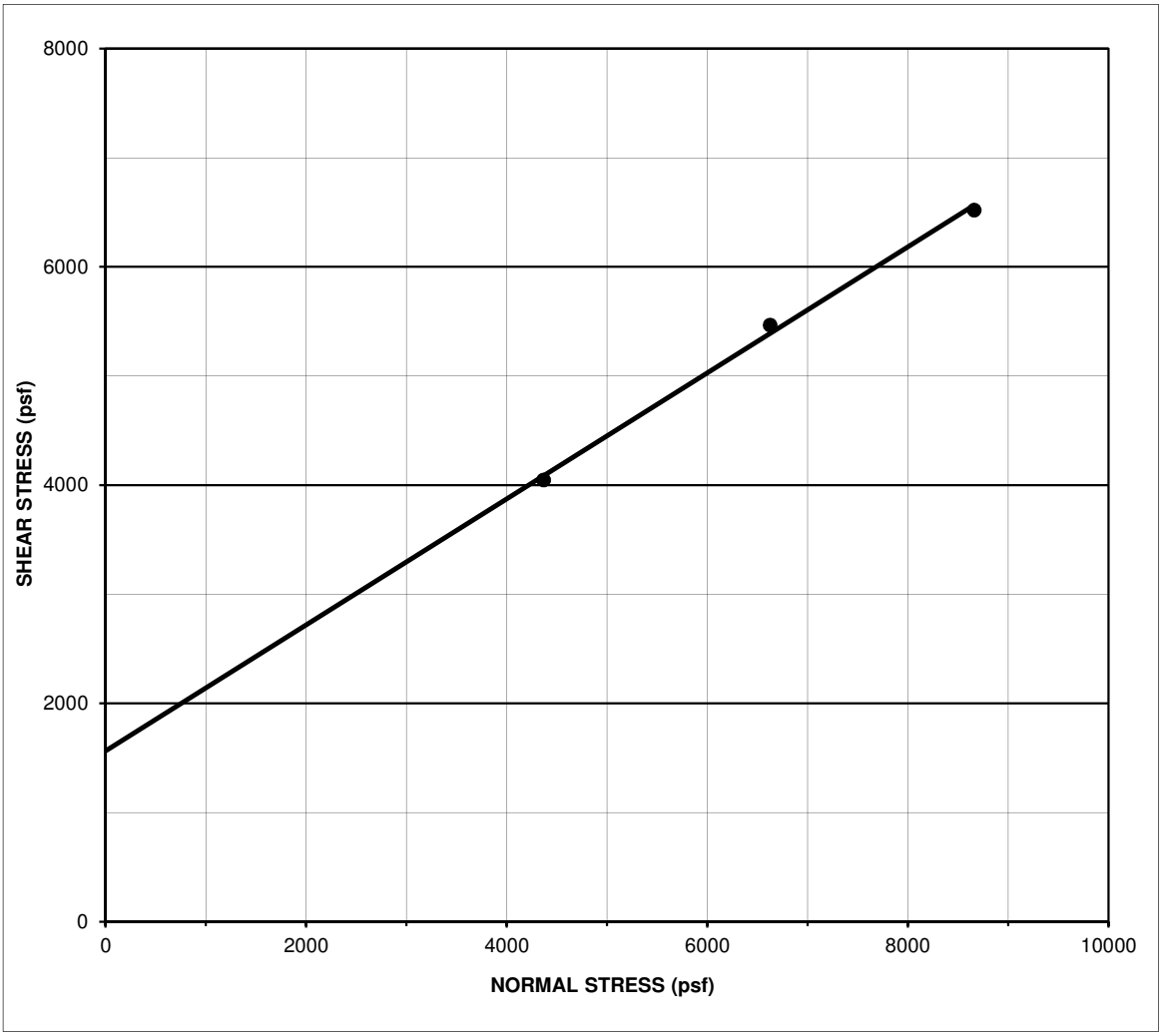




TECHNICON
ENGINEERING SERVICES, INC.

Direct Shear Test

ASTM D3080



PROJECT:	HSR
TES NO.:	23502-ZS9
SAMPLE DATE.:	9/13/2013
BORING NO.:	S0066R
SAMPLE NO.:	MC12-1 Depth(56-56.5')
DESCRIPTION:	Fine Sand (SP)

Cohesive Pressure, psf	**1560**
Internal Friction Angle	**30**

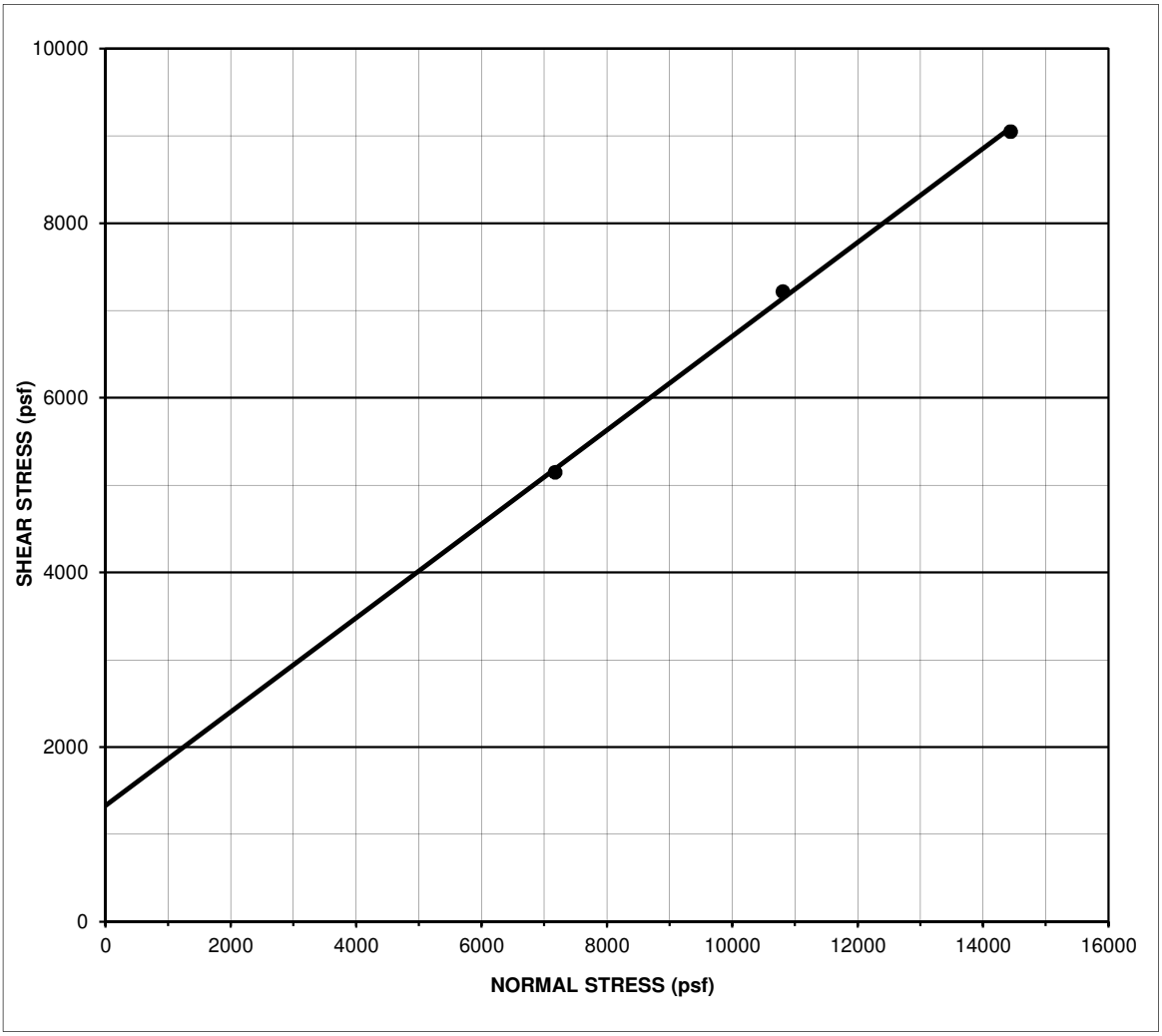
SPECIMEN	A	B	C	D	E
DRY DENSITY (pcf)	103.4	103.4	103.4	---	---
INITIAL WATER CONTENT (%)	25.0	25.0	25.0	---	---
FINAL WATER CONTENT (%)	29.00	27.00	28.00	---	---
NORMAL STRESS (psf)	4371	6627	8662	---	---
NORMAL STRESS (psi)	30	45	60		
MAXIMUM SHEAR (psf)	4048	5466	6521	---	---

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Direct Shear Test

ASTM D3080



PROJECT:	HSR
TES NO.:	23502-ZS9
SAMPLE DATE.:	9/13/2013
BORING NO.:	S0066R
SAMPLE NO.:	MC18-1 Depth(86-86.5')
DESCRIPTION:	Silty Sand (SM)

Cohesive Pressure, psf	**1330**
Internal Friction Angle	**28**

SPECIMEN	A	B	C	D	E
DRY DENSITY (pcf)	110.9	110.9	110.9	---	---
INITIAL WATER CONTENT (%)	19.2	19.2	19.2	---	---
FINAL WATER CONTENT (%)	22.00	24.00	12.00	---	---
NORMAL STRESS (psf)	7177	10808	14439	---	---
NORMAL STRESS (psi)	50	75	100		
MAXIMUM SHEAR (psf)	5147	7216	9051	---	---

Engineering Materials Laboratory
4539 N. Brawley #108, Fresno, CA 93722
559-276-9311

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Unconsolidated-Undrained Triaxial Compression on Cohesive Soils

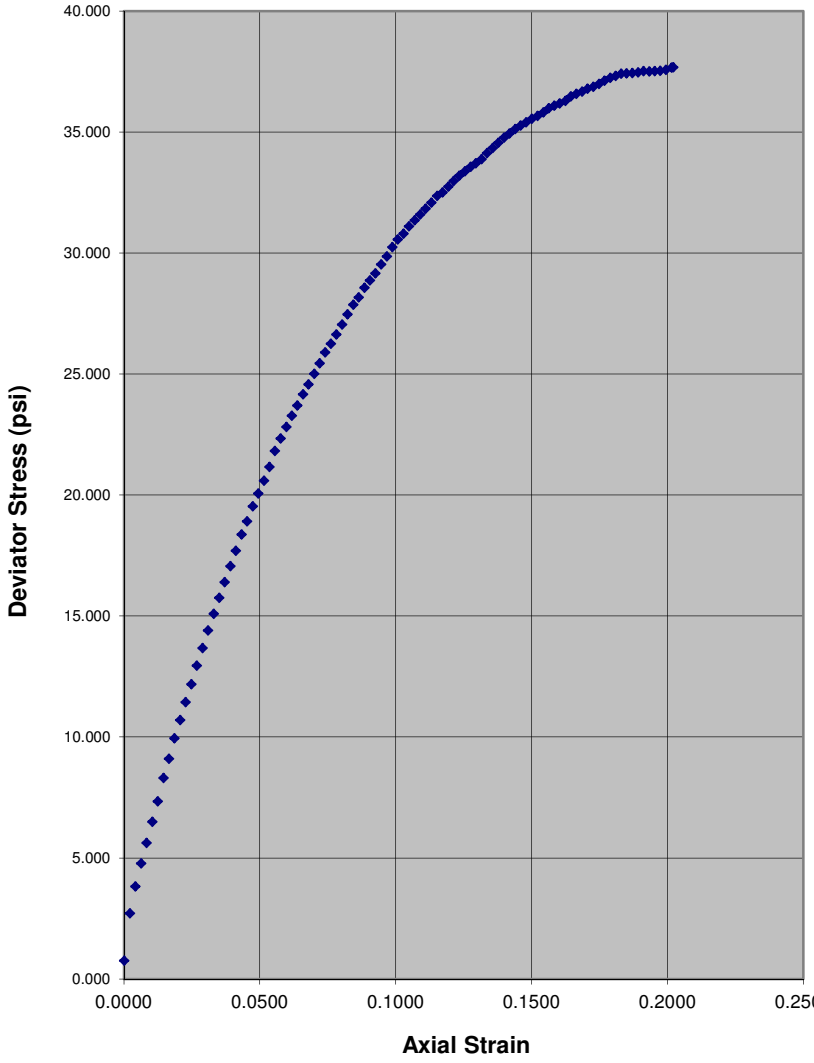
ASTM D2850

PROJECT	CA HST	TES #	23502-ZS9
BORING #	S0066R; MC-9-1 Depth (ft) 41	Test Date	11/13/2013
DESCRIPTION	(ML) Sandy Silt	Tested By	D. Carruba

Sample and Test Parameters

Wt. Specimen Wet + Tare (gm)	776	Water Content %	22.2	Diameter, D_0, (in)	2.42
Wt. Specimen Dry + Tare (gm)	635.2	Wt. Tare (gm)	0	Area, A_0, (in^2)	4.60
Wt. Water (gm)	140.8	Unit Wt. Wet (pcf)	129.8	Height, H_0, (in)	4.95
Wt. Speciment Dry (gm)	635.2	Unit Wt. Dry (pcf)	106.3	Volume, V_0, (in^3)	22.77
Rate, in/min	0.05	Rate, %/min	1.00	Saturation, %*	102.3
Cell Pressure, psi	45	Axial Strain, %	**20.21%**	Deviator Stress, psi	**37.68**

*S.G. assumed 2.70





UNCONSOLIDATED UNDRAINED COMPRESSION TEST - ASTM D2850

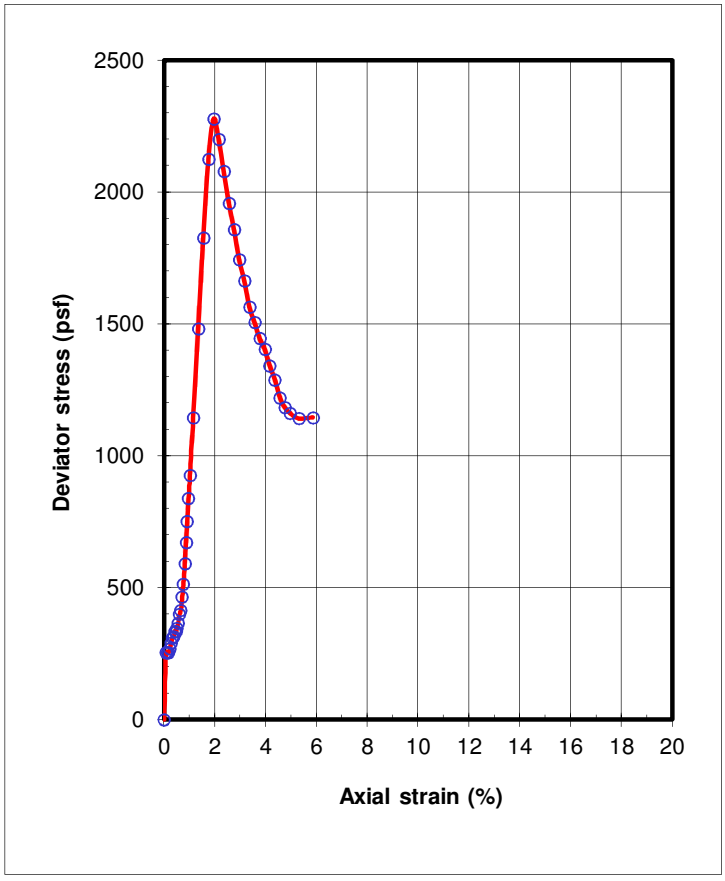
Client : URS/ARUP/HMM JV
Project : California High Speed Train
Job # : 2636-001.0
Boring # S0066R
Sample # : U10
Depth (ft) : 45
Date tested : 11/28/13
Soil : Grayish brown sandy clay

Data Reduction:

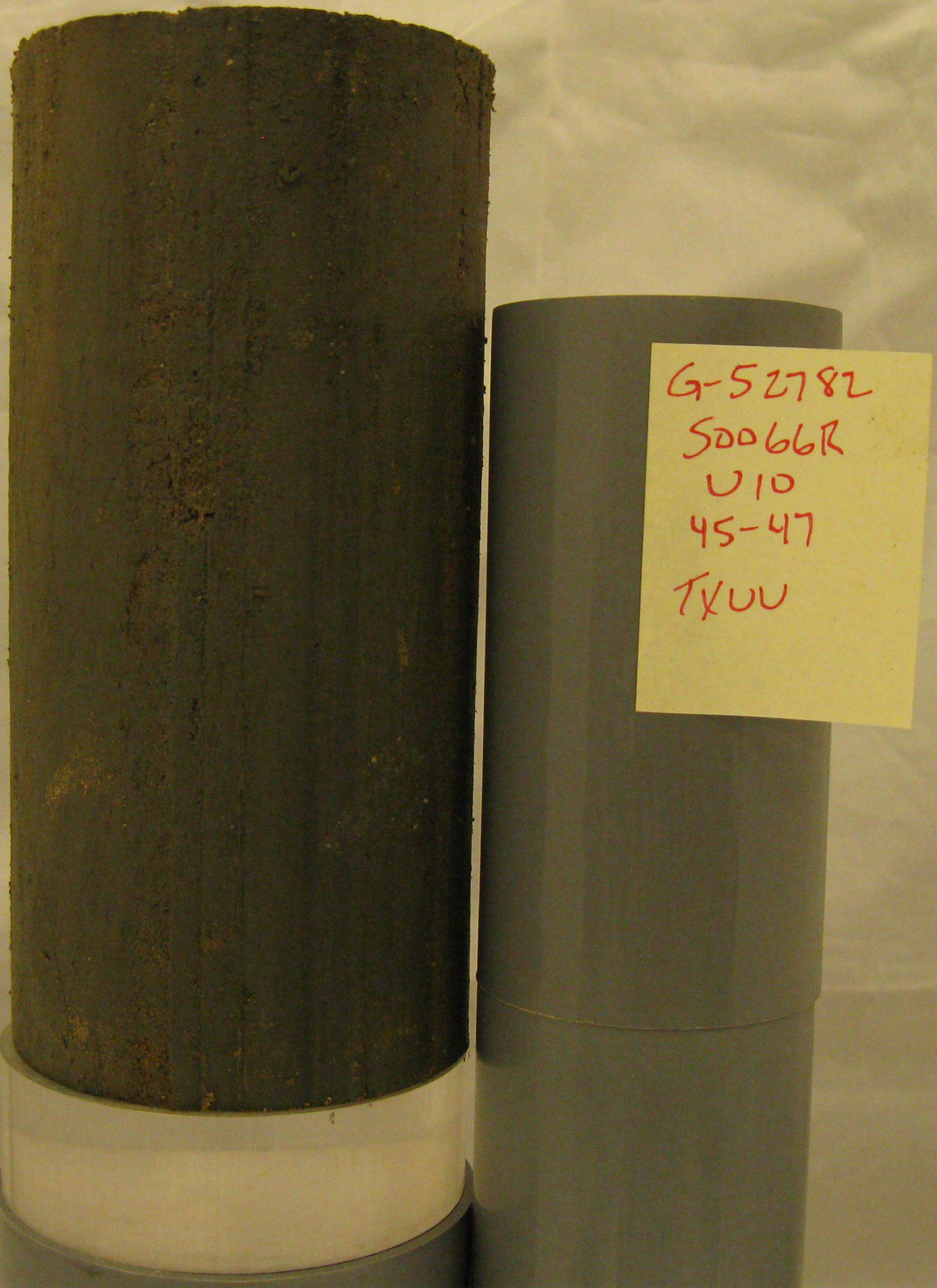
Dial factor = 1.0 in/unit
Load factor = 1.0 lb/unit

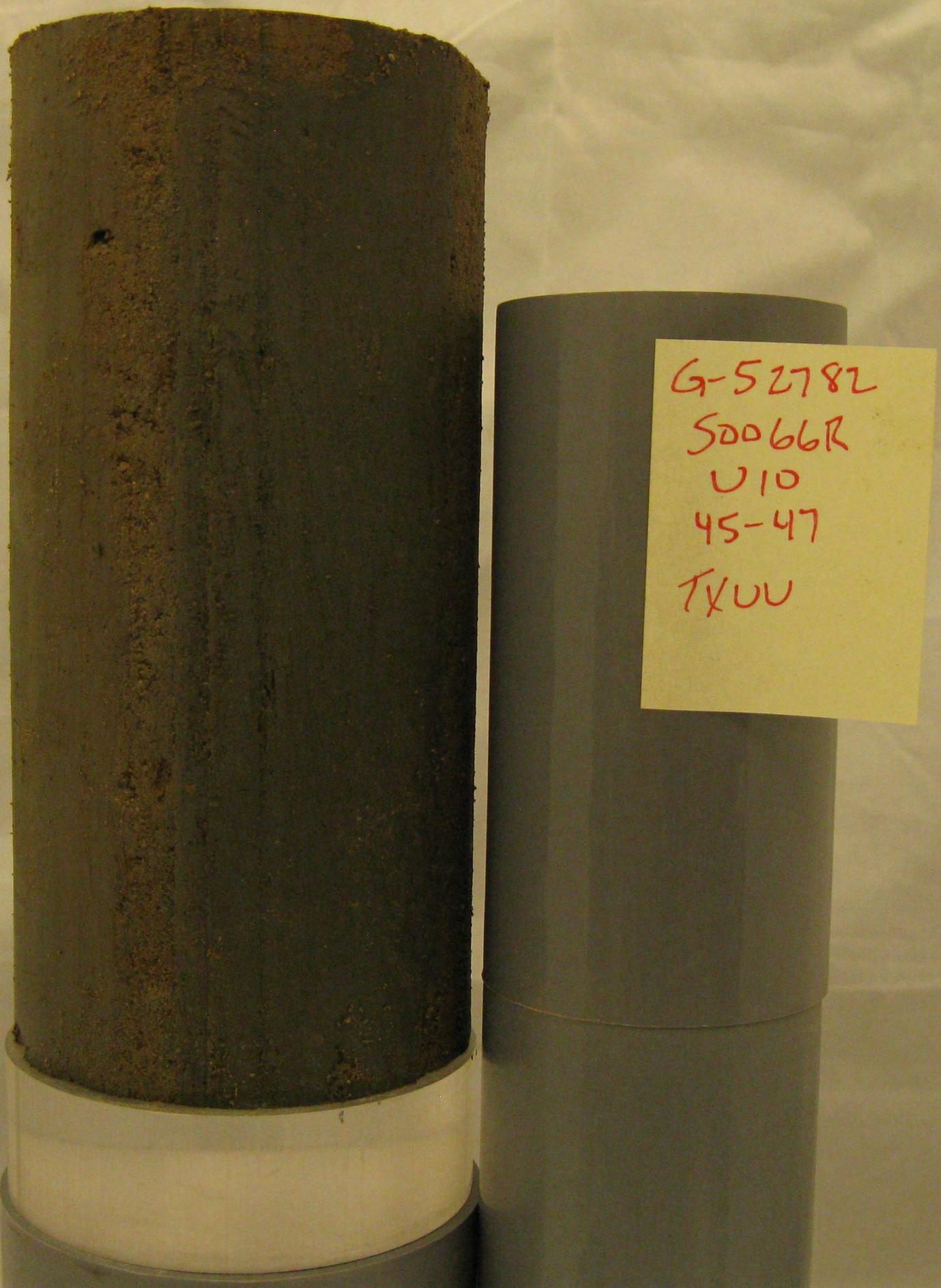
Specimen:
Total wt. = 1376.1 gms
Ht. = 6.050 in
Ave dia. = 2.870 in
Area = 6.472 sq.in
Volume = 641.6 c.c.
Shearing rate = 0.03 inch/min
Shearing rate = 0.5 %/min
Gs (assumed) = 2.70

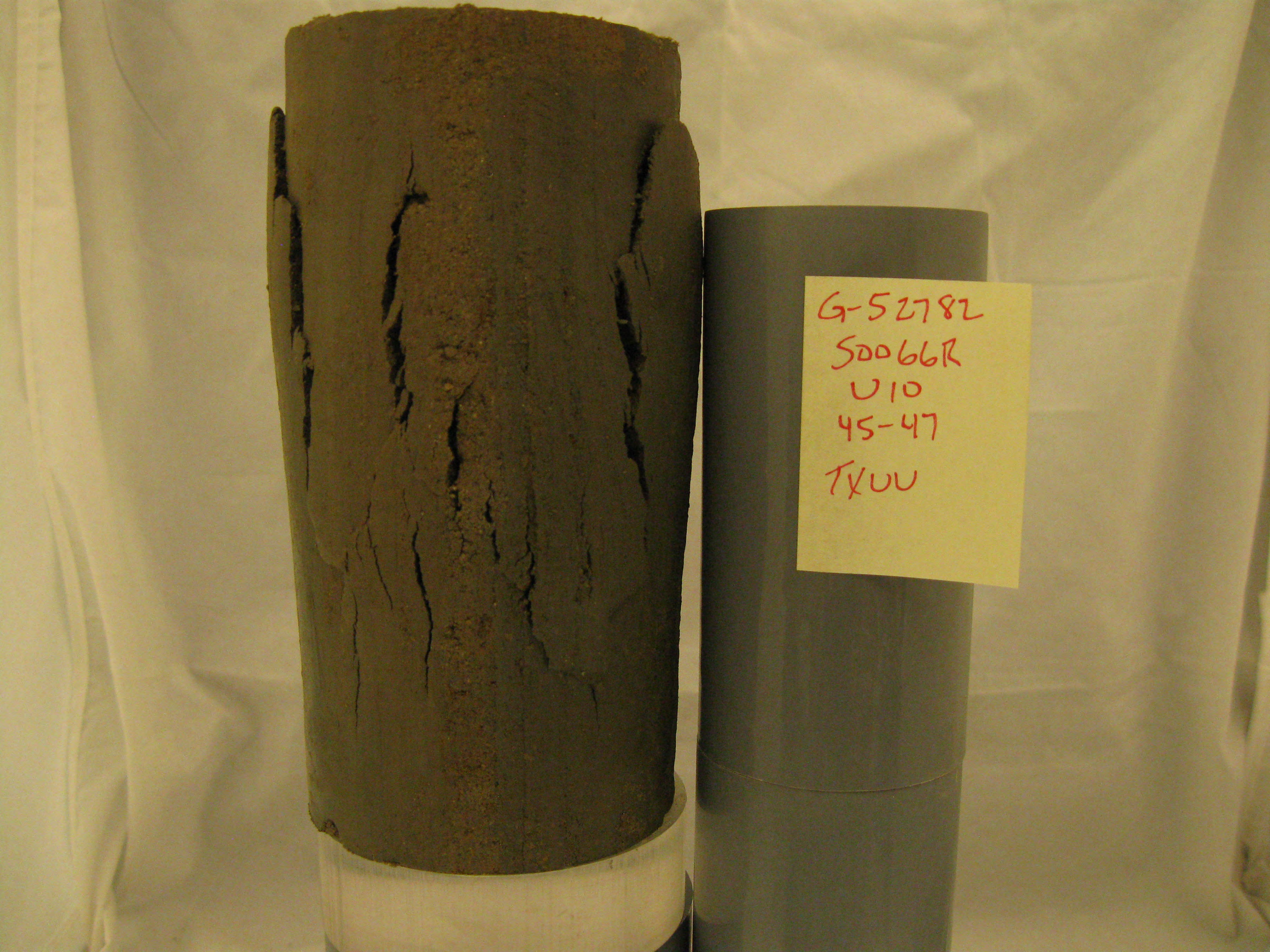
Test Report:
Void ratio = 0.490
Ht/Dia ratio = 2.11
Moisture = 18.4 %
Total density = 133.8 pcf
Dry density = 113.1 pcf
Saturation = 101.2 %
Chamber pressure = 7200 psf
Max. deviator stress = 2278 psf
Strain @ failure = 1.95 %



Dial Read.	Load Read.	Axial Strain (%)	Deviator Stress (psf)
-0.002		0.00	0.0
0.003	11.4	0.08	254.1
0.006	11.4	0.13	253.9
0.009	11.4	0.18	253.8
0.012	12.1	0.23	269.2
0.015	13.2	0.28	292.3
0.018	14.0	0.33	310.2
0.021	14.3	0.38	316.6
0.024	15.2	0.43	336.0
0.027	15.2	0.48	335.8
0.029	15.7	0.51	347.7
0.032	16.6	0.56	366.8
0.035	18.1	0.61	399.5
0.038	18.8	0.66	415.9
0.041	21.1	0.71	466.4
0.044	23.3	0.76	514.7
0.048	26.9	0.82	592.7
0.051	30.4	0.87	670.9
0.054	34.1	0.92	751.5
0.057	38.1	0.97	839.0
0.060	42.1	1.02	926.8
0.068	52.1	1.15	1145.1
0.080	67.5	1.35	1482.3
0.092	83.4	1.55	1827.3
0.104	97.2	1.75	2124.8
0.116	104.4	1.95	2277.7
0.128	101.1	2.15	2201.6
0.141	95.7	2.35	2078.5
0.153	90.3	2.55	1958.5
0.165	85.9	2.76	1858.1
0.177	80.8	2.96	1745.1
0.189	77.3	3.16	1664.8
0.201	72.8	3.36	1565.5
0.214	70.2	3.56	1506.8
0.226	67.5	3.76	1446.1
0.238	65.8	3.96	1405.0
0.250	62.9	4.16	1340.6
0.262	60.6	4.36	1289.0
0.274	57.4	4.56	1219.8
0.286	55.9	4.76	1183.7
0.298	54.9	4.96	1161.9
0.320	54.2	5.32	1141.9
0.352	54.7	5.85	1146.3


G-52782
S0066R
U10
45-47
TXUU


G-52782
S0066R
U10
45-47
TXUU


G-52782
S0066R
U10
45-47
TXUU


G-52782
S0066R
U10
45-47
TXUU

Boring Number	S0066R				S0066R	
Sample Number	MC05-1				MC05-1	
Depth (ft)	21				21	
Date Tested	11/25/13				11/27/13	
Description	Olive brown silty sand				Olive brown silty sand	
Sample Condition	Undisturbed				Undisturbed	
	Initial	**After Consolidation**	**Initial**	**After Consolidation**	**Initial**	**After Consolidation**
Height (in)	5.94	5.86			5.86	5.61
Diameter (in)	2.39	2.37			2.45	2.43
Height/Diameter Ratio	2.48				2.40	
Total Weight (g)	910.55	891.30			910.55	891.30
Moisture Content (%)	20.18	17.64			20.18	17.64
Moisture Content From	entire sample				entire sample	
Wet Density (pcf)	129.84	130.95			125.85	130.13
Dry Density (pcf)	108.04	111.32			104.71	110.62
Area (cm^2)	29.00	28.53			30.34	30.03
Total Volume (cc)	437.79	424.89			451.68	427.58
Void Ratio	0.5602	0.5142			0.6097	0.5238
Saturation (%)	97.3	92.6			89.4	90.9
Specific Gravity	2.70				2.70	
Specific Gravity From	Assumption				Assumption	
B value Before Consolidation	0.95				0.95	
Total Back Pressure (psf)	7200				7200	
Rate of Strain (%/min)	0.02				0.02	
Axial Strain at Failure (%)	5.00				20.91	
Effective Consolidation Stress (psf)	2880				7200	
Major Effective Stress at Failure (psf) σ1	5434				17192	
Minor Effective Stress at Failure (psf) σ3	2880				7200	
Deviator Stress at Failure (psf)	2554				9992	
Pore Pressure at Failure (psf)	0				0	
Failure Sketch	Photo				Photo	
	ADDITIONAL INFORMATION REQUIRED BY ASTM D 4767					
Classification Based On	Visual				Visual	
Liquid Limit						
Plastic Limit						
Remarks						

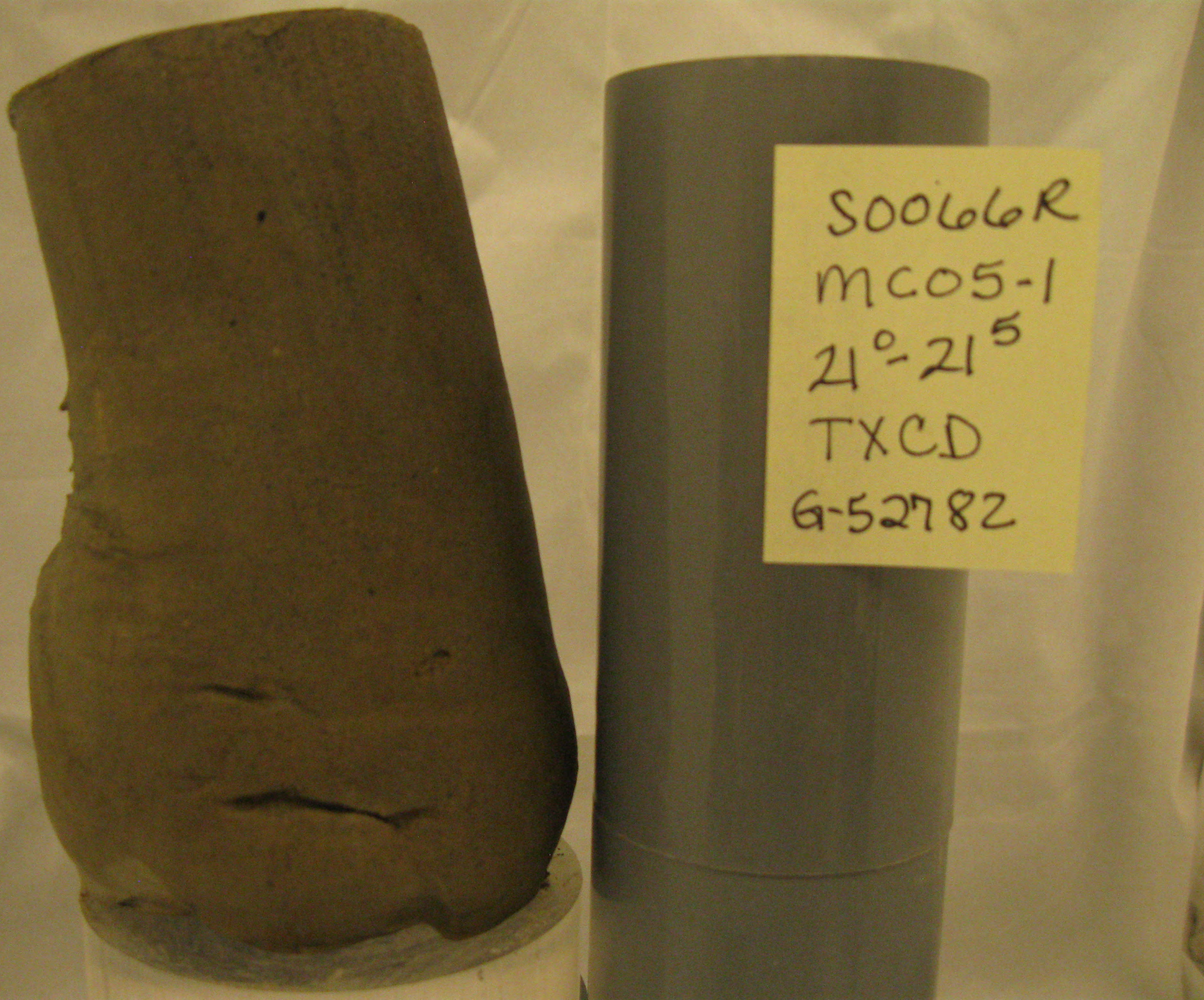
The following information is the same for all samples	
Method for Specimen Saturation	Wet
Method used to determine Area after Consolidation	Method A
Failure Criteria	Maximum Effective σ1 / σ3 ratio

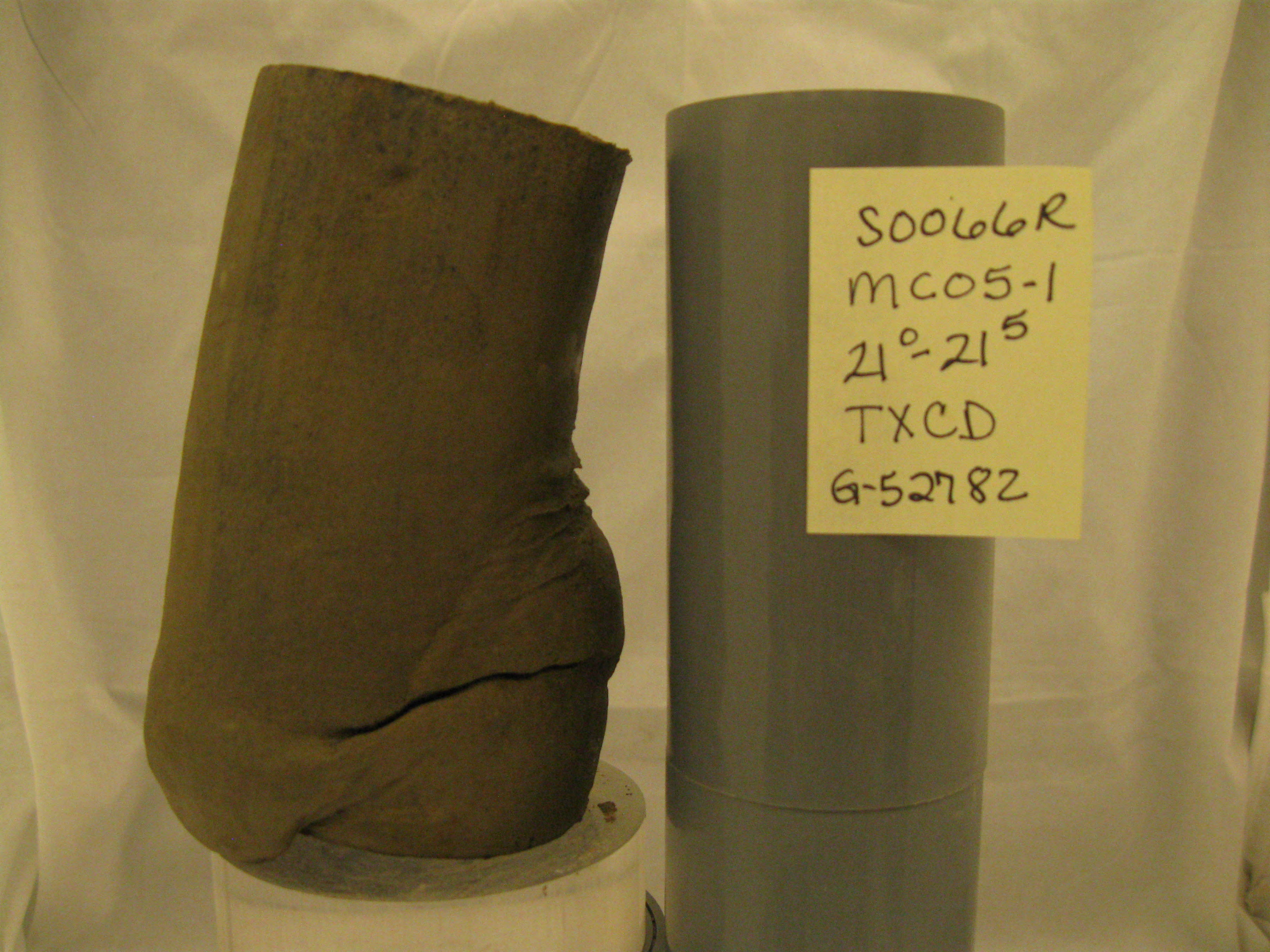
Client: **URS/ARUP/HMM JV**	Boring #: **S0066R**	Sample #: **MC05-1**
Project: **California High Speed Train**	Depth (ft): **21**	
Project #: **2636-001.0**	Soil: **Olive brown silty sand**	

ASTM D-7161	**STAGED TRIAXIAL COMPRESSION CONSOLIDATED-DRAINED**	**TXCD**


S00666R
MC05-1
21°-21.5
TXCD
G-52782


S0066R
MC05-1
21°-21⁵
TXCD
G-52782


S00606R
MC05-1
21°-21⁵
TXCD
G-52782


S00606R
MC05-1
21°-21⁵
TXCD
G-52782

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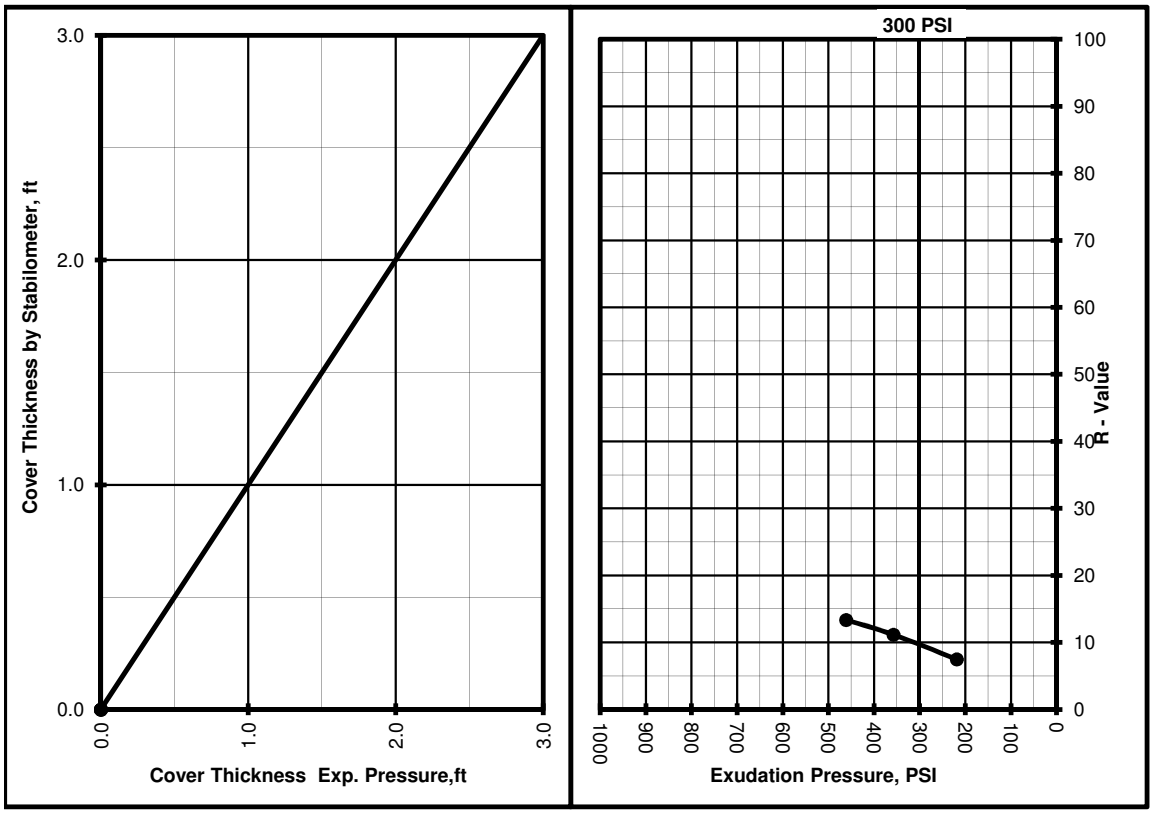
R - VALUE TEST

ASTM D - 2844 / CAL 301

Project Number	:	23502-ZS9
Project Name	:	CA HSR FRE_BAK
Date	:	11/7/13
Sample Location/Curve Number	:	Boring S0066R,B-1 @ 0-5'
Soil Classification	:	SM

TEST	A	B	C
Percent Moisture @ Compaction, %	18.5	19.4	18.2
Dry Density, lbm/cu.ft.	109.0	105.0	107.7
Exudation Pressure, psi	357	218	461
Expansion Pressure, (Dial Reading)	0	0	0
Expansion Pressure, psf	0	0	0
Resistance Value R	11	7	13

R Value at 300 PSI Exudation Pressure	**10**
R Value by Expansion Pressure (TI =): 5	**Expansion Pressure Nil**



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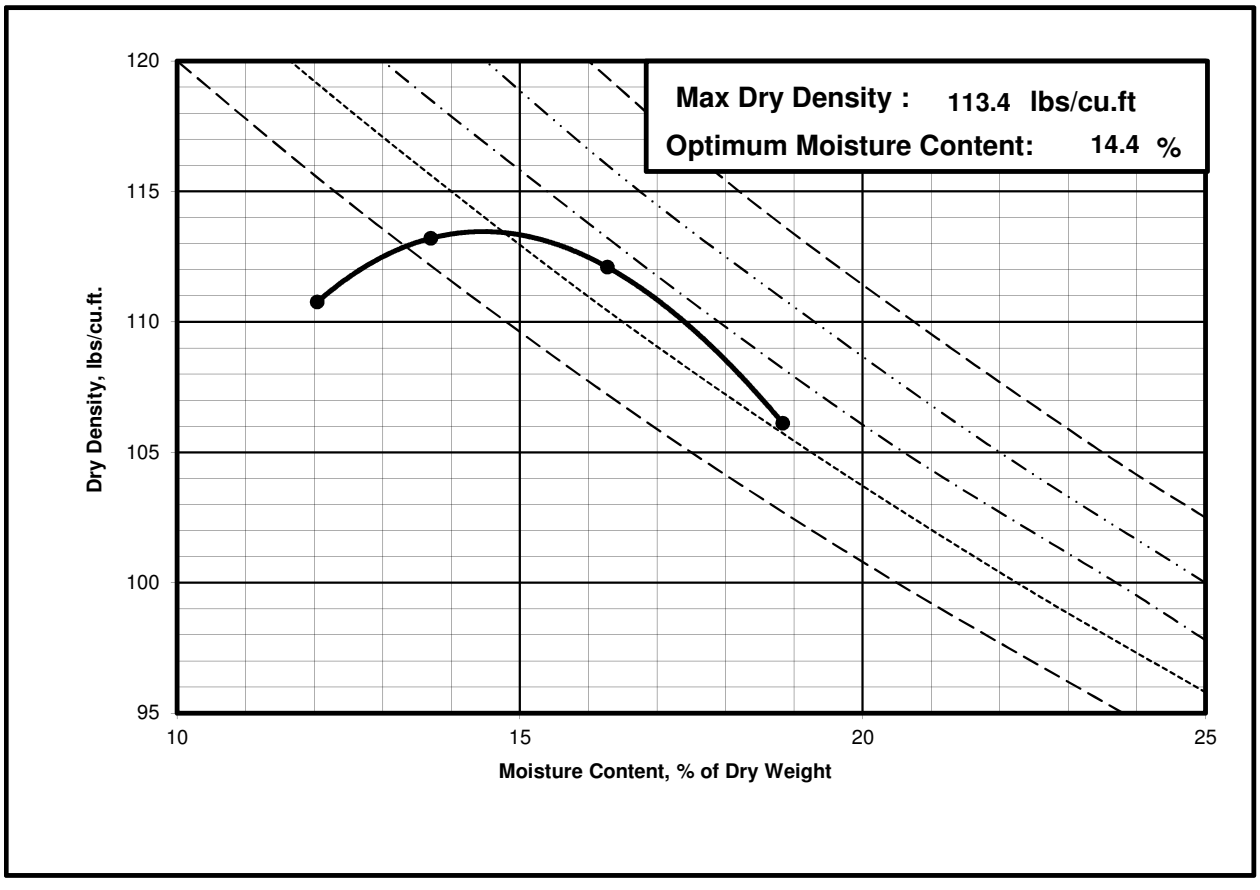
TECHNICON
ENGINEERING SERVICES, INC.

Laboratory Compaction Curve

ASTM D - 1557

Project Number	: 23502-ZS9
Project Name	: CA HSR FRE_BAK
Date	: 11/15/2013
Sample location	: S0066r
Sample/Curve Number	: B01 0'-5'
Soil Classification	: SM (Silty Sand)
Test Method	: 1557A

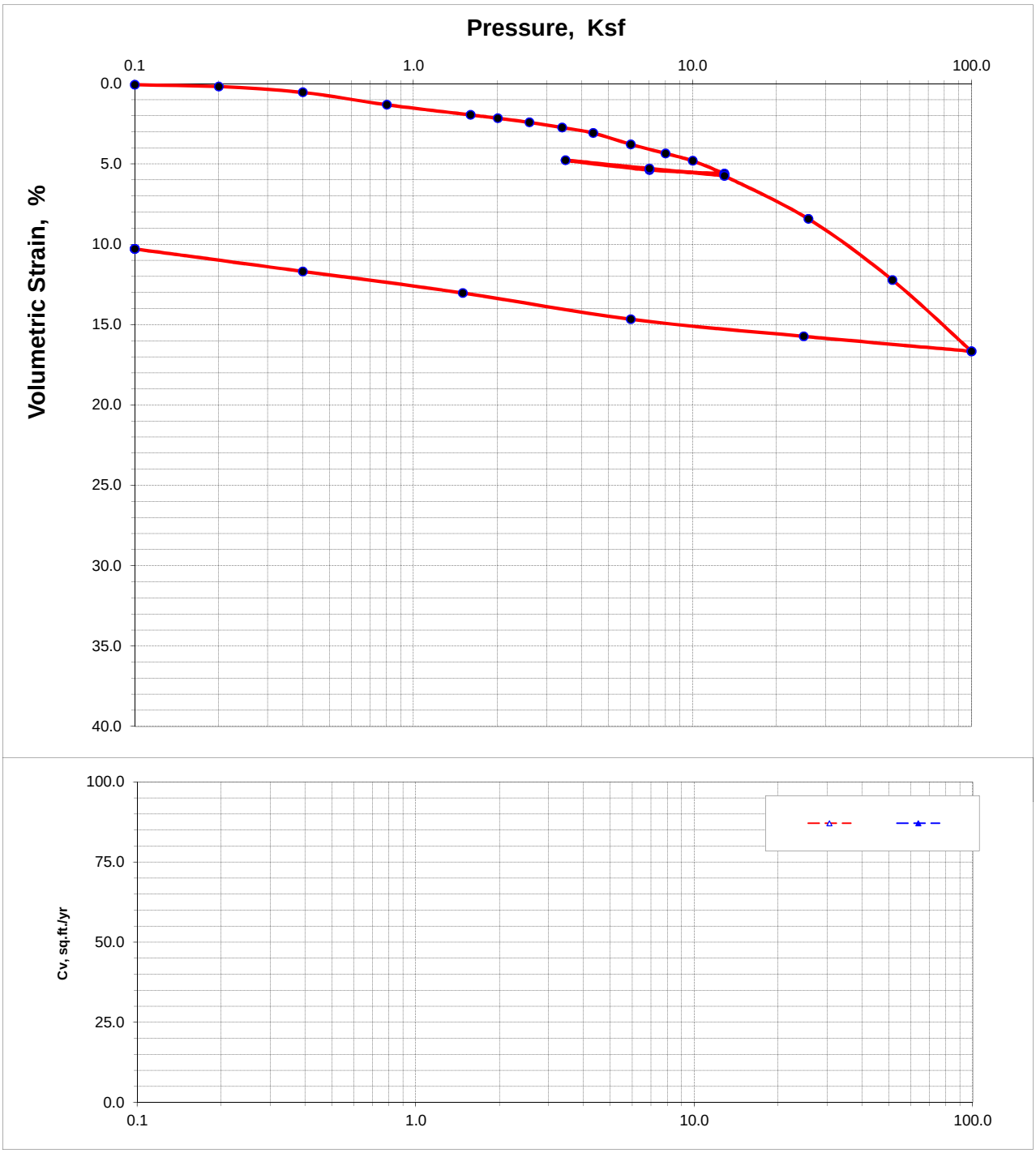
	1	2	3	4
Weight of Moist Specimen & Mold, gm	3902.0	3926.6	3862.6	3832.3
Weight of Compaction Mold, gm	1957.8	1957.8	1957.8	1957.8
Weight of Moist Specimen, gm	1944.2	1968.8	1904.8	1874.5
Volume of mold, cu. ft.	0.0333	0.0333	0.0333	0.0333
Wet Density, lbs/cu.ft.	128.7	130.3	126.1	124.1
Weight of Wet (Moisture) Sample, gm	200.0	200.0	200.0	200.0
Weight of Dry (Moisture)Sample , gm	175.9	172.0	168.3	178.5
Moisture Content, %	13.7	16.3	18.8	12.0
Dry Density, lbs/cu.ft.	113.2	112.1	106.1	110.8



CONSOLIDATION TEST

Boring Number	S0066R	Sample Number	U10	Depth (ft)	45-47	
Soil Description	Grayish brown sandy clay					

	Water Content, %	Total Unit Weight, pcf	Void Ratio	Saturation %	Height in	Diameter in	Specific Gravity	Liquid Limit, %	Plasticity Index, %
Initial	21.1	125.3	0.630	90.6	1.00	2.420	(assumed) 2.70	33	17
Final	17.2	135.1	0.463	100.4	0.897				



2636-001.0

Inspection Services Inc.